Merlin Results Presentation

Nokia Siemens Networks Experiences of Architecture Evaluation Framework
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CONTENTS

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EXPERIENCES IN APPLYING ARCHITECTURE EVALUATION

Architecture Evaluation Framework

AEF is for understanding and managing product architectures.

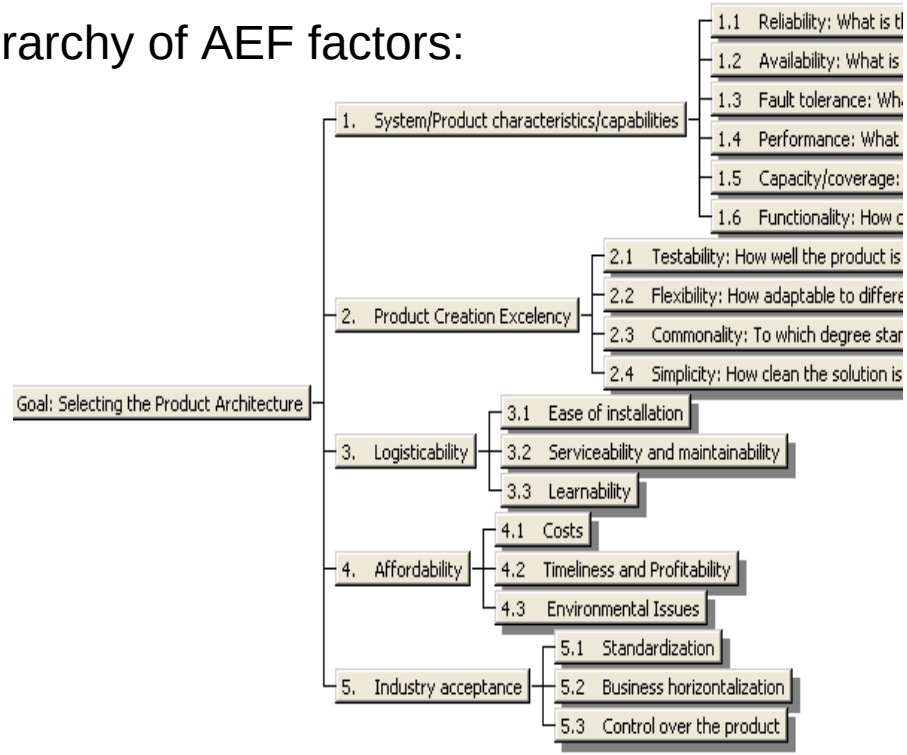
At leaf level 113 questions for the determined set of stakeholders.

Evaluators assess the importance of factors in their current product creation point of view.

Many of factors are collaboration related.

Business point of view on top and technical at the bottom.

Hierarchy of AEF factors:



Evaluation criteria, attributes, and metrics

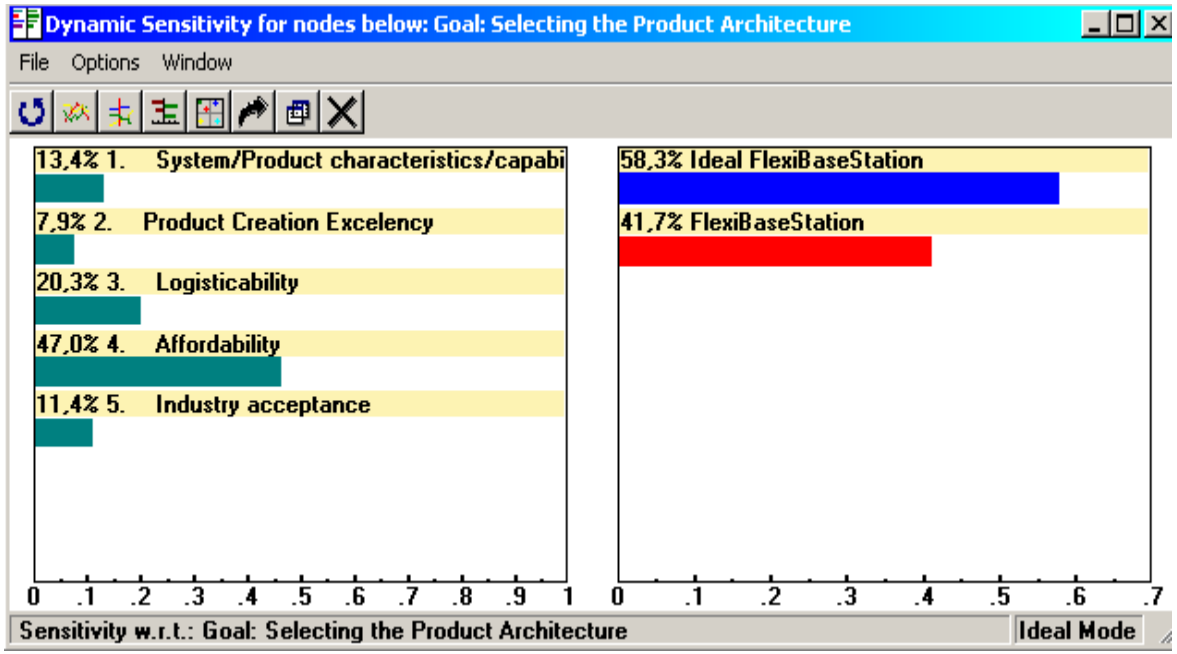
Giving values to each weighted sub-attribute based on the evaluated product architecture.

strong yes	yes	no effect	no	strong no
1 (1,000)	2 (,707)	3 (,464)	4 (,309)	5 (,183)

	Ideal mode		RATINGS	RATINGS	RATINGS	RATINGS	RATINGS
AID	Alternative	Total	1. System/Product character 1.6 Functionality: How comp 1.6.4 Functionality based on standards: How much functionality is required to satisfy standards? (L:,283)	2. Product Creation Excelen 2.1 Testability: How well t 2.1.1 Built in testing 19 What percentage of the system is covered by the built in testing capability? (L:,042)	2. Product Creation Excelen 2.1 Testability: How well t 2.1.1 Built in testing 20 What percentage of non root cause alarms (of all alarms)? (L:,181)	2. Product Creation Excelen 2.1 Testability: How well t 2.1.1 Built in testing 21 What percentage of detected root cause alarms (of all alarms)? (L:,499)	2. Product Creation Excelen 2.1 Testability: How well t 2.1.1 Built in testing 22 Does the system have the ability to log and record all system failures? (L:,278)
A4	Ideal	,864	much	100 - 80 %	0 - 20 %	100 - 80 %	yes
A5	FlexiBaseStation	,609	very much	40 - 20 %	20 - 40 %	80 - 60 %	yes

Sensitivity, baseline

Imaginary example:



Architecture Evaluation Method/Workshop

Business drivers

Step 1: Define business drivers, lifecycle of the product, constraints

Framework set-up phase

Step 2: Data Collection - Five Sets of Data

Step 3: Rationalize Data into High Level Attributes and Sub-Attributes

Domain adjusting phase

Step 4: Make the domain specific evaluation base line for the attribute hierarchy

Step 5: Define question specific ratings per domain

Evaluation phase

Step 6: Run evaluation

Step 7: Run sensitivity-analysis

Step 8: Make risk and effect analysis

Creation of Architecture Evaluation Framework

Activities performed:

- Multi-stakeholder workshop to identify most vital product properties and qualities
- Balancing the hierarchy
- Research on emergent factors (on complex systems)
- Creation of a set of tools with different accuracy and resource consuming (less effort – less accuracy)
    - high accuracy evaluation on AHP based tool
    - simple spreadsheet tool for light “early phase” use

Results achieved:

- Understand internally defined needs beyond architectures
- Method to discuss and communicate of the factors
- Method for prioritizing architecture factors
- Enables early validation architecture development
- Gives wide and mutual understanding of architectural issues
- There is huge potential in architecture evaluation

Effects of Architecture Evaluation Framework

Shortcomings recognised:

- Not enough data (and hard evidence) about importance and effect of factors, prevents efficient use of AEF.
- The first version too heavy to use, lowered by balancing hierarchy and creating a check list like Excel sheets of factors as very light versions.
- AEF didn’t cover system level (emergent) factors

Future outlook:

- Improving the process of requirements and information channels to architecturally important stakeholders.
- Testing the complexity part of the hierarchy.
- New attempt for wider deployment this fall.
- Architecture evaluation is a very ‘big cake’ and we have only ‘tasted’ it.

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Thank you.